REMARKS

Attached hereto is a request for an extension of time and the appropriate fee.

The present invention is directed to a combination powder compression molding and assembly system including a rotary disk and an insertion assembly station, as shown in Figures 7 and 8. The principal reference *Korsch*, U.S. Patent No. 4,057,381, merely teaches a rotary press and neither appreciates nor addresses the problems solved by the invention defined in our present claims.

The present invention provides an improved dry cell molding and assembly system, that not only provides more electrode material, thereby lessening the number of pellets required to fill the dry cell casing or container, but further can cause the dry cell casing as it is being filled to travel in a concentric path with the rotary die arrangement while retaining a pellet in the casing.

Thus, the present invention provides an improvement in the manufacturing of elongated cylindrical pellets, and more particularly, dry cell electrode pellets which can be loaded into a casing to increase both the uniformity and density of the electrode material as shown in Fig. 6 of our present application. Not only are the electrode pellets manufactured with less wear on the die, they are also immediately ejected from the die into the casing for the dry cell which has been positioned to travel in a concentric path with a rotary molding die assembly so that the electrode pellet is removed from a first die directly into a casing with a center molding pin stabilizing the positioning of the molded electrode pellet before it is retracted into the die. An operating unit removes the casing filled with the first electrode pellet and causes the filled casing to travel in a concentric path to a subsequent loading station where a casing is positioned over a second die to receive a second molded electrode pellet and then moved for final packaging.

The center pin can be spring-biased and can move relative to the die to assist in insuring a proper fill of electrode powder material and to also assist in the ejection of the elongated tubular electrode pellet with less wear and tear on the die. The electrode pellets can be constructed with less of an outer taper, thereby providing more electrode material, and can be further provided with relatively thinner tubular electrode pellet walls approaching one millimeter in thickness. The center pin can be further designed with a convex upper surface that can also be shaken or vibrated to assist in the uniform fill of the die.

The Office Action contended that Claims 29-35 were completely anticipated by *Korsch*, U.S. Patent No. 4,057,381.

The Office Action cited the *Korsch* reference as teaching an equivalent assembly of rotary die plate pressing units and a center pin. The Office Action further contended that a plurality of "loading units", elements 6-8 and 13-14, were also taught. Applicant respectfully traverses this position. Elements 6-8 in the *Korsch* reference, as shown, for example, in Fig. 1, are actually guides which control the movement of the bottom and top dies 4 and 5. See Column 3, Lines 11-13. Additionally, Elements 13 and 14, as can be seen in Fig. 2, are rollers that can move in slotted holes in the outside of the die 11. See Column 3, Lines 23-26. Additionally, the center punch 35 shown for example in Fig. 4, is rigidly mounted to the matrix table 2. See Column 4, Lines 20-28, and also Column 2, Lines 29-36. These elements do not teach an assembling of molded pellets into a case with operating units.

Accordingly, Applicant submits that the *Korsch* reference does not teach a plurality of loading units or operating units as defined in the present claims that are capable of moving along a concentric path for transferring a retractively positioned case or housing container above and aligned with a die, to thereby receive a molded electrode pellet. Reference can be made to Fig. 9

of our present application wherein a case 124 is appropriately aligned and positioned over a die for receiving an ejected electrode pellet 13. Reference can also be made to Fig. 8 wherein the concentric path of the casings is disclosed so that, for example, an appropriately loaded dry cell case, with an initial electrode pellet can be inserted in the casing, then the casing with the pellet is moved by a conveyor member. As shown in Fig. 9, when a casing is withdrawn from an insertion assembly station to a retracted position on a concentric travel path, the electrode pellet loaded within the case 124 can be supported by the support plate 128 as the operating lever 135 moves the case to the next station. When another case is loaded with a second electrode pellet, it can be transferred for further finishing of the dry cell assembly. Thus, the plurality of operating units that move along a concentric path is not taught by the *Korsch* reference, nor is it suggested by the *Korsch* reference under 35 U.S.C. § 103. Applicant respectfully requests retraction of the 35 U.S.C. § 102 rejection.

The Office Action further rejected Claims 29-39 over the *Bogue et al.*, U.S. Patent No. 5,662,849, in view of the *Korsch*, U.S. Patent No. 4,057,381.

As noted in the case of *In re Rijckaert*, 28 USP12d 1955 (CAFC 1993):

> In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. In re Oetiker, 977 F.2d 1143, 1445, 25 USP12d 1443, 1444 (Fed. Cir., 1992). Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. Id. "A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested that claimed subject matter to a person of ordinary skill in the art." In re Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) quoting In re Reinhart, 531 F.2d 1048, 1051, 189 USPQ2d 143, 147 (CCPA 1976)). If the examiner fails to establish a prima facie case, the rejection is improper and will be overturned.
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> Rijckaert argues that the examiner has not established a prima facie case of obviousness and that the examiner's assumptions do not constitute the disclosure of prior art. We agree.

It should be noted that the burden of establishing a *prima facie* case of obviousness lies with the Patent Office. *In re Fine*, 5 USPQ2d 1956 (Fed. Cir. 1988) (stating: "The PTO has the burden under section 103 to establish a *prima facie* case of obviousness"). To establish a *prima facie* case of obviousness, (1) there must be some suggestion or motivation (either in the references themselves or in the knowledge generally available to one of ordinary skill in the art) to combine the reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference must teach or suggest all the claim limitations. See MPEP §§ 2142-43.

The *Korsch* reference was attempting to resolve a problem of density variation, for example, in cup-shaped products. It did not recognize nor address the issue of eliminating or minimizing the taper of tubular or cylindrical electrode pellets. Additionally, it did not suggest increasing the efficiency in not only manufacturing such electrode pellets, but further loading them into a casing that required a plurality of such pellets. Thus, the *Korsch* reference did not recognize the problems addressed by our present invention.

There are a number of evaluations required under Section 103. One highly relevant inquiry is "[t]he relationship between the problem which the inventor . . . was attempting to solve and the problem to which any prior art reference is directed." *Stanley Works v. McKinney Mfg. Co.*, 216 USPQ, 298, 304 (Del. D.C. 1981). Thus, in analyzing the prior art under Section 103 of the Act, we must clearly comprehend the problems addressed by the present inventors and those problems must be compared or contrasted, as the case may be, with the problems addressed by the prior art.

Pursuing further the "problem" analysis required under Section 103 of the U.S. Patent Act, the applicability of any reference against the claims of a pending U.S. patent application requires compliance with *In re Gibbons*, 100 USQP 298, where it stated:

> In considering the questions of the invention, it is necessary to determine whether or not the art relied upon contains adequate direction for the practice of the invention without resort to the involved application. (Emphasis added.)

Utilizing the problem analysis to the *Bogue et al.* disclosure, it can be determined that it was trying to solve a problem in the medical field of forming pills or tablets of a quick dissolve nature. Thus, it was attempting to manufacture low-density tablets, preferably with a harder outer shell and a less dense interior core. The solution was to form, by a compression step, a dosage unit directly in the package. See Column 2, Lines 32-42. Thus, as seen in Figs. 5 and 6 of the *Bogue et al.* reference, the packaging 25 has the tablet 31 directly formed in the packaging. Since *Bogue et al.* is only interested in low-density tablets, see Column 3, Lines 36-55, the product tray can be formed of a transparent plastic or aluminum foil since it is not withstanding much pressure. In fact, the product tray 25 can be formed as a "blister pack". See Column 5, Lines 8-36.

Clearly *Bogue et al.* fails to teach the formation of a uniformly dense and relatively high elongated electrode pellet.

Since *Bogue et al.* wishes to form low-density medical tablets directly within the packaging, it not only fails to teach a center pin, but it would clearly teach away from a center pin as used in our present invention or even as used in the *Korsch* reference. Thus, there is no teaching or suggestion in either *Korsch* or *Bogue et al.* to create a hypothetical combination as defined in our presently pending claims. *Bogue* would not wish to have a center pin piercing the packaging, and the *Korsch* reference is not interested in a low-density easily dissolvable medical

pill to be manufactured within a packaging. Applicant submits that using an objective standard of problem analysis discloses that the only teaching for collecting these two diverse prior art references would be in hindsight from the present application.

In *Orthopedic Co., Inc. v. United States*, 217 USQP 193 (C.A.F.C. 1983), the Federal Circuit set forth a useful guide for determining the scope and content of the prior art. *Orthopedic*, at pages 196-197, also focuses on the "problem" faced by the inventors:

> In determining the relevant art . . one looks at the nature of the problem confronting the inventor.
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> [W]ould it then be nonobvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit [the patent application before the Examiner] as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of nonobviousness. (Emphasis added.)

Finally, the *Stott*, U.S. Patent No. 2,963,993, was cited for combination with the *Bogue, et al.* and *Korsch* reference. The *Stott* reference was directed to making coated tablets by compression and basically taught a rotary die for making the core tablet and then translating the core tablet across an arcuate plate 26 for loading it in a secondary die, which has already had a first fill of the coating material, and then subsequently receives a second fill of the coating material so that subsequent punches can create the composite coated tablet. See the teaching in Column 3, Lines 7-70.

None of these references teach providing a casing so that it can be positioned by an operating unit above a die to receive an electrode pellet and then the casing that is partially filled

can be moved concentrically to a second location for receiving a second electrode pellet to increase the efficiency in the manufacturing steps of forming, for example, a dry cell battery. The other secondary features of the manner in which the center pin is moved and holds the electrode pellet relative to a casing and insures a uniform fill with a low wear ejection of an electrode tablet are not taught by the cited references.

Claim 29 has been amended so that not only the plurality of operating units that move a casing in a concentric path with the molding units is provided, but additionally the insertion assembly station for operatively positioning and inserting a molded pellet into a case is disclosed. Thus, Claim 29 and its dependent claims more than adequately distinguish over any combination of the cited references.

New dependent Claims 52-55 further disclose distinguishing features on the operation of the operating units over that of the cited prior art. Thus, these dependent Claims 52-55 are also believed to be allowable.

Applicant submits that the present claims are now allowable and an early notice of allowance is requested. If not, applicant requests the courtesy of a telephone interview which

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would help further the prosecution of this case, and he is respectfully requested to contact the undersigned attorney at the listed telephone number to schedule the telephone interview.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on March 14, 2003.

By: _____
Signature

Dated: March 14, 2003

Very truly yours,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend the following claims:

29. (Amended) A powder compression molding and assembly system comprising:

a rotary disk;

a plurality of molding units mounted on the rotary disk at spaced circumferential locations, each of said plurality of molding units including a cylindrical die, a lower plunger concentric with said cylindrical die, an upper plunger, and a center pin concentric with said lower plunger for defining annular space within said die for molding powder into tubular configurations, as the plurality of the molding units are moved along a circular path;

a pair of pressure rollers provided at least at two equally spaced locations on the movement path of the plurality of molding units for pressure engagement with the upper plunger and the lower plunger, respectively, of each of said plurality of molding units; [and]

a feed station for loading each cylindrical die with a powder material to be molded by pressure engagement with the upper plunger and lower plunger into a pellet;

a plurality of [loading] operating units provided respectively to each of the plurality of molding units and moved along a concentric path with the molding units, for transferring and retractably positioning a [cylindrical container] case above and in alignment with the die of each of the molding units[.] ; and

an insertion assembly station mounted at an appropriate position on a movement path of the molding units for inserting the molded pellet into a case operatively positioned in alignment with the die by an operating unit.

33. (Amended) The powder compression molding and assembly system according to Claim 32, wherein each of the [loading] operating units comprises an operating lever operatively connected to said cam follower, a support arm connected to said operating lever and rotatably supported on the rotary disk, a case holding means mounted on said support arm, and a convey jig detachably supported on the case holding means, said convey jig supporting the cylindrical container such that an open end of the [cylindrical container] case faces downwards.

34. (Amended) The powder compression molding and assembly system according to Claim 33, further comprising a support plate for closing and opening the open end of the [cylindrical container] case to prevent the pellet from falling out of the case.

35. (Amended) The powder compression molding and assembly system according to Claim 29, wherein said pair of pressure rollers are provided at a plurality of locations corresponding to a number of the tubular configurations to be inserted into one [cylindrical container] case.

36. (Amended) The powder compression molding and assembly system according to Claim 35, further comprising a means for supplying a plurality of [cylindrical containers] cases one after another to each of the [loading] operating units, said means for supplying the [cylindrical containers] cases being provided downstream of one of said pressure rollers in a direction of rotation of the rotary disk.

37. (Amended) The powder compression molding and assembly system according to Claim 36, wherein the [cylindrical containers] cases are supplied to the [loading] operating units as being held with respective convey jigs.

38. (Amended) The powder compression molding and assembly system according to Claim 36, further comprising a means for receiving the [cylindrical containers] cases one after another from each of the case holding means after a predetermined number of tubular configurations have been inserted into the [cylindrical containers] cases, said means for receiving the [cylindrical containers] cases being provided downstream of one of said pressure rollers in a direction of rotation of the rotary disk.

39. (Amended) The powder compression molding and assembly system according to Claim 38, wherein the [cylindrical containers] cases are transferred from the [loading] operating units to a next step as being held with respective convey jigs.

47. (Amended) A [rotary type] powder compression molding and assembly system according to claim [45] 29, wherein a plurality of the insertion assembly stations are provided so that the pellets formed at each of the molding units located between the insertion assembly stations are inserted into the case immediately after the compression molding at the next insertion assembly stations.

48. (Amended) A [rotary type] powder compression molding and assembly [station] system according to claim 47, wherein the insertion assembly station is provided in a pair, and further comprises:

a case carrying-in means for feeding the cases into one insertion assembly station, a series of case holding means for holding and conveying the cases loaded with the pellet to another insertion assembly station; and

a case carrying-out means for removing the cases after being loaded with the pellet at each insertion assembly station.

49. (Amended) A [rotary type] powder compression molding and assembly [station] system according to claim 49. wherein each of the case holding means is mounted on the rotary disk corresponding to each molding unit and is constructed to hold and retract the case loaded with the pellet at the first insertion assembly station to its retracted position beside the molding unit, and to advance the case to the movement path of the molding units at the next insertion assembly station.

50. (Amended) A [rotary type] powder compression molding and assembly [station] system according to claim 48, wherein the case is held by a conveyor member, which is conveyed and positioned by the actions of the case carrying-in means, the case holding means, and the case carrying-out means.

51. (Amended) A [rotary type] powder compression and molding assembly [station] system according to claim 48, wherein the case holding means is mounted to one end of an operating lever which is mounted on the rotary disk corresponding to each molding unit, the operating lever being rotatably connected to the rotary disk with a cam follower at the other end thereof engaged with a cam disposed coaxially with the rotary disk, the cam having a retraction cam surface for holding the case holding means at its retracted position beside the molding unit and an operating cam surface for causing the case holding means to advance to and retract from the movement path of the molding unit.